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15 We claim:

1. A process for removing carbon monoxide from carbon-monoxide-comprising substance streams by adsorption to an adsorption composition, which comprises bringing the carbon-monoxide-comprising substance stream into contact with a copper-, zinc- and zirconium-comprising adsorption composition.
2. A process as claimed in claim 1, wherein an adsorption composition is used which comprises copper in an amount equivalent to from 30 to 99.8% by weight of CuO, zinc in an amount equivalent to from 0.1 to 69.9% by weight of ZnO and zirconium in an amount equivalent to from 0.1 to 69.9% by weight of ZrO₂, in each case based on the total amount of the adsorption composition.
3. A process as claimed in claim 2, wherein an adsorption composition is used which essentially consists of copper in an amount equivalent to from 30 to 99.8% by weight of CuO, zinc in an amount equivalent to from 0.1 to 69.9 % by weight of ZnO and zirconium in an amount equivalent to from 0.1 to 69.9% by weight of ZrO₂, in each case based on the total amount of the adsorption composition, the proportions of the individual components totaling 100% by weight.
4. A process as claimed in one of claims 1, 2 or 3, wherein an adsorption composition is used in which copper is present in part in metallic form and in part in the form of copper(I) oxide and/or copper(II) oxide, zinc is present in the form of zinc oxide and zirconium is present in the form of zirconium dioxide.

5. A process as claimed in claim 1, wherein carbon monoxide is removed from a liquid propylene stream.
6. A process as claimed in claim 1, wherein carbon monoxide is removed from a carbon-monoxide- and oxygen-comprising substance stream and part of the carbon monoxide is removed by catalytic reaction of the adsorption composition with oxygen.
7. A process as claimed in either of claims 1 and 6, wherein a copper(I)-oxide- and/or copper(II)-oxide-comprising adsorption composition is used and part of the carbon monoxide is removed by chemical reaction with said copper oxides
8. A process as claimed in one of claims 1, 6 or 7, wherein the adsorption composition is activated by treatment with a reducing agent.
9. A process as claimed in claim 8, wherein the adsorption composition is activated by being contacted with a hydrogen-comprising gas.
10. A process as claimed in one of claims 1, 6 or 7, wherein the adsorption composition is regenerated after reaching its adsorption capacity by heating it to a temperature in the range from 50 to 400°C and/or passing a gas through a bed of the adsorption composition to be regenerated.
11. An adsorption composition, copper(I) oxide and/or copper(II) oxide calculated as which essentially consists of from 30 to 99.8% by weight of copper oxide CuO, from 0.1 to 69.9% by weight of zinc and from 3 to 69.9% by weight of zirconium dioxide, in each case based on the total amount of the adsorption composition, the proportions of the individual components totaling 100% by weight.

Adsorption composition and process for removing carbon monoxide from substance streams

5 Abstract

Carbon monoxide is removed from substance streams by adsorption to an adsorption composition which comprises copper, zinc and zirconium.

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